

# Detectors

for the Alpha and Beta Spectroscopy



## Short description + Technical data



SARAD has been manufacturing ion-implanted silicon detectors for the alpha/beta spectroscopy since 1994. SARAD detectors have been proved very worthwhile a thousand times as standard detectors or in our radiation measuring equipment.

Key features are their robust design, low background signal and an outstanding spectroscopic performance even at low bias voltages. Already bias voltages of 10 V enable to completely absorb the alpha radiation up to emission energy of 10 MeV. The space-charge depletion depth of the BS detector types especially developed for beta detection radiation amounts to more than 500  $\mu\text{m}$ .

All types can be used both under ambient conditions and in a vacuum chamber. The entrance window is provided with a passivation layer of aluminum of a thickness of 50 nm (V-type) or 500 nm (E-type). Therefore, the E types are especially suited for applications that require operation under daylight conditions.

The detectors will be delivered with a Microdot connector (industrial standard) to guarantee the full compatibility with other manufacturers. As an option, the detectors can also be ordered for BNC or SMA connectors.

Type	Ø Housing [mm]	Height [mm]	Ø Window [mm]	Alpha FWHM [keV] *)
AS/BS 400 V/E	34	13.5	22	< 18/38
AS/BS 600 V/E	41	13	28	< 22/42
AS/BS 900 V/E	48	13	34	< 27/45
AS/BS 1200 V/E	55	13	39	< 35/55
AS/BS 2000 V/E	67	13	50	< 40/75

\*) FWHM measured in vacuum with a beam angle from 85° to 95° (collimator), Am-241 source (5.486 keV) and 35 V bias

Bias voltage            ABS-Types    10 ... 100V

Depletion depth      > 100  $\mu\text{m}$  at 10V bias voltage  
> 500  $\mu\text{m}$  at bias voltage as specified in the protocol

Passivation            V-Types        50 nm  
                              E-Types        500 nm

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